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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/029,659

10/22/2001

Otto J. Prohaska

03141-P0380A WWW/DC

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02/14/2008

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EXAMINER

OLSEN, KAJ K

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

02/14/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | | |
|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 10/029,659 | | PROHASKA ET AL. | |
| | Examiner | | Art Unit | |
| | KAJ K. OLSEN | | 1795 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2007 and 26 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20,21,23-28,30,31,33 and 34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) 20,21,23-28,30,31,33 and 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to 131 Declarations

1. In response to the examiner's previous rejection over the primary teaching of WO 01/36957 (hereafter "WO '957"), applicant has filed declarations from inventors Dalmia and Prohaska attempting to establish that the invention was reduced to practice prior to the publication date of WO '957. As submitted, these declarations are not persuasive for the following reasons. First, the declarations appear to be incomplete. In particular, item 3 from both declarations state that a copy of a June 22, 2000 invention disclosure was attached to the declarations. The examiner finds no invention disclosure form included in the applicant's response. Second, the declarations refer in item 5 to application number 09/515,724. This application has nothing to do with the instant invention nor does it have overlapping inventorship with either the instant invention or with the invention of WO '957. The examiner believes the inventors meant 10/029,659 instead. Third, item 5 states that the applicant was reduced to practice no later than October 22, 2001, which is the filing date of the instant invention. However, WO '957 was published on May 25, 2001 and applicant's affidavits, even if persuasive, would not overcome the outstanding rejection as May 25 predates October 22. In fact, applicant's affidavits do not appear to accomplish anything because applicant is already entitled to a filing date of October 22, 2001 based on the filing date of the instant invention. Stating that the invention was reduced to practice by this date does not push back the date of the invention at all. Applicant's affidavits would need to convincingly establish that the instant invention was reduced to practice no later than May 25, 2001 in order to overcome the outstanding rejection relying on WO '957.

Claim Rejections - 35 USC § 103

2. Claims 20, 21 and 23-28, 30, 31,33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO '957 in view of any of Lawrance et al (4,272,353), Debe et al (USP 6,319,293), Fray et al (USP 4,879,005) or Bahar et al (USP 5,547,551).

3. WO '957 discloses a method of making a sensor comprising the steps of providing a substrate 10, providing at least one opening 20 in the substrate, placing an electrode 3 proximate to the at least one opening, contacting a ionomer membrane 5 to the substrate and electrode, providing at least one hole 6 in the ionomer membrane, and aligning the at least one hole with the at least one opening for defining a gas passage. See fig. 1; p. 4, l. 24 through p. 14; and p. 9, l. 16 through p. 10, l. 3. WO '957 does not explicitly disclose whether the ionomer membrane is wet or dry during the various steps of the method of making of the sensor. However, the prior art teaches that the membrane can be "dry" during electrochemical cell construction. Lawrance teaches that keeping the membrane dry during sensor construction allows the membrane to be roughened providing greater adhesion to catalyst particles. See col. 11, l. 62 through col. 12, line 48. WO '957 teaches attaching the ionomer to catalytic electrodes as well as to other catalytic particles. See p. 5, ll. 4-14 and claim 7. Debe also teaches that the membrane could be dried prior to construction of an electrode-membrane assembly thereby obviating the need for unnecessary wetting steps. See col. 16, ll. 50-61; col. 23, l. 5; col. 25, ll. 20-43 and col. 31, ll. 17-31. Fray teaches that although the membrane may be wet earlier, it is to be dried prior to its attachment to a substrate 3 and prior to the attachment of electrode 6. See col. 2, l. 39 through col. 3, l. 20. It would have been obvious to one of ordinary skill in the art at the time the

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invention was being made to utilize the teachings of any of Lawrance, Debe, or Fray because and utilize a dry form of membrane during the specified construction steps of the sensor of WO '957 because the prior art repeatedly recognized the use of the dry form of the membrane during cell construction and because the dry form facilitated the deposition of catalytic particles to the ionomer, which is precisely relevant to the teaching of WO '957. .

4. Moreover, WO '957 suggests the use of hot pressing for its contacting step (see p. 11, ll. 26 and 27 and p. 12, ll. 18-20). Lawrance teaches that hot-pressing (i.e. a conventional technique for attaching an ionomer membrane to other substrates via heat (see EP '041 and Lawrance)) utilizes temperatures of 182-188 °C (see col. 12, ll. 33-35), which greatly exceeds the boiling temperature of water. Hence this indicates that in order for one to hot-press a membrane to a substrate surface, one would have had to apply enough heat to dry the membrane first because thermodynamically the membrane could not get to those temperatures until the water was driven from the membrane anyway. In view of this, one possessing ordinary skill in the art would have recognized that a dry form of the membrane would have been preferable for hot-pressing because the hot-pressing stage would have occurred more quickly with less heat application for an already dried membrane over a wet membrane.

5. Finally, Bahar teaches that ionomer films, including Nafion, are stronger in a dry state than in a wet hydrated state. See col. 20, ll. 4-8 and table 2. Because WO '957 applies techniques such as hot pressing and die punching to the ionomer (p. 11, ll. 26 and 27 and p. 12, ll. 13-15), one possessing ordinary skill in the art would have been motivated to rely on the use of the stronger dry form of the membrane, as suggested by Bahar, during these various

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construction steps of WO '957 so that the ionomer membrane is less susceptible to tearing and/or warping during sensor construction.

6. With respect to aligning the opening with the electrode, see WO '957, fig. 1.
7. With respect to positioning a polymer layer over the electrode, see p. 12, ll. 21-24 of WO '957.
8. With respect to providing counter and reference electrodes, see p. 5, ll. 1-4 of WO '957.
9. With respect to the provision of a reservoir, see p. 5, ll. 15-20 of WO '957.

Response to Arguments

10. Applicant's arguments filed on 11-8 and 11-26-2007 have been fully considered but they are not persuasive. Applicant argues that the filed affidavits establish that the date of the instant invention predates the date of the WO '957 reference. However, as the examiner discussed above, the filed affidavits do not establish that the date of the invention predates the teaching of WO '957 and these arguments are thereby moot.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAJ K. OLSEN whose telephone number is (571)272-1344. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kaj K Olsen/
Primary Examiner, Art Unit 1795
February 18, 2008